

MEDICAL PHYSICS WORLD

Bulletin of the International Organization for Medical Physics

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President's Message — Prof. Azam Niroomand-Rad, Ph.D., President IOMP



Prof. Azam Niroomand-Rad,
President of IOMP

be able to take part and collaborate in the activities of the 18 sub-disciplinary Commission and 3 Affiliated Commission in IUPAP. See <http://www.iupap.org> for more details. Finally, we would be able to apply for a modest conference grant (~\$1000 / year, or \$3000.00 every 3 years) for our ICMP (Int'l Conference on Medical Physics) conferences.

I am also very pleased to inform you that IOMP is now an "official" co-sponsor of the World Congress on Physics and Sustainable Development (WC-PSD) by contributing \$5,000 towards the travel expenses of medical physicists from developing countries to Durban, South Africa, October 31 - November 2, 2005. We have also agreed to send at least one delegate to this Congress.

As you are aware, the main organizers of the WC-PSD are IUPAP, ICTP (International Center for Theoretical Physics, Trieste, Italy), and the SAIP (South African Institute of Physics). See <http://www.wcpsd.org> for more details. However, we plan to demonstrate to the participants of the WC-PSD (namely government agencies and scientific communities on the international arena) a leading role for IOMP in all aspects of physics that relate to health and medicine. We plan to focus on issues related to developing countries - such as lack of resources and government support. IOMP should emphasize the healthcare improvement through improved education and training of medical physicists. Even though the "professional aspects" of physics is not discussed at this conference, I believe that IOMP "professional" efforts in establishing national medical physics associations are fundamental in developing and sustaining medical physics in developing countries. Lastly, we want to present an action plan for what the IOMP

can do to help solve some of the pressing world problems related to health and medicine.

To facilitate IOMP input to the WC-PSD, we should coordinate and communicate our plan through two (IOMP) individuals who have been asked to serve on the WC-PSD by the main organizers - namely ICTP: Perry Sprawls (serving as Co-Chair of the Planning Committee on Physics and Health) and Slavik Tabakov (serving as a member of the Planning Committee). We want IOMP to have an important role in planning the Physics and Health theme. This can only be achieved if all of us (individually or collectively) submit and present our ideas and projects on issues related to medical physics to the Congress. To succeed, we particularly need to hear from the medical physicists in developing countries.

(continued on page 2)

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President's Message *(continued from page 1)*

To achieve the above stated goals, we could consider the following project-like suggestions put forth by the Planning Committee:

- a) Educational resources such as courses, materials, e-learning possibilities, etc
- b) Projects to provide guidance and assistance on the development of effective academic programs in the developing countries
- c) Structured programs for connecting students in the developing countries to educational opportunities in other countries
- d) Organized consultations and collaborations
- e) Resources that can be used to promote medical physics in developing countries.

Clearly, we are not limited to these possibilities and we can come up with some more ideas. Below are some specific suggestions I would like to share with you:

1. E-Teaching Possibilities for Medical Physicists in Developing Countries:

Example: To demonstrate the success of the Slavik's EMERALD project in teaching diagnostic/nuclear materials to medical physicists in developed countries (namely Europe) and,

- (1a) to expand the teaching materials to radiation therapy and
- (1b) to have these materials available to all medical physicists in developing countries.

2. Short-Term Topical Courses/Workshops for Medical Physicists in Developing Countries:

Example: To demonstrate the success of the one-week annual AAPM/IOMP International Scientific Exchange Programs (ISEP) courses/workshops in teaching radiation therapy physics (since 1992) and diagnostic/nuclear medicine physics (since 2002) to medical physicists in developing countries and

- (2a) to expand the program to more than one ISEP program per year to reduce the existing waiting time for these courses which is often 3 to 4 years and
- (2b) to expand the program to offer "follow up" ISEP topical courses/workshops to the developing countries that have already received an ISEP course/workshop but are interested in additional topical refresher courses

3. Compilation of Medical Physics Graduate Programs - Worldwide:

Example: To demonstrate the value of compiling the information on medical physics graduate programs (including the syllabi of the required academic courses as well as clinical training opportunities, cost and length of the program, visa and language requirements, and availability of fund and scholarship for the international students) and

- (3a) to expand on the existing IOMP compilation of the medical physics graduate programs to include at least one program from each country which offers one (18 countries are listed as of writing of this report), and
- (3b) to make this information readily available to the medical physicists who are interested to develop a graduate medical physics program in their own countries, and
- (3c) to make this information readily available to the students in developing countries who are interested in pursuing medical physics education either in their own countries or in a nearby country that they may find affordable.

4. Other Avenues to Improve Medical Physics Practice in Developing Countries:

Example:

- (4a) to demonstrate the value of establishing national medical physics association for developing countries where one does not exist and show its impact on education and training of the medical physicists and on promotion of medical physics practice, and
- (4b) to discuss the IOMP ongoing efforts in trying to have the medical physics profession be listed in the ILO (International Labor Organization) list of occupations and seek support from international delegates who are attending the WC-PSD.

As always, we are looking to the members for direction. Please work with us to improve our organization by taking part in the IOMP initiatives and providing us feedback.

PROCEEDINGS OF WORLD CONGRESSES – Chicago 2000 and Sydney 2003

There are a substantial number of CDs on the proceedings of both Congresses available. Anyone interested in receiving a copy should contact the Secretary-General peter.smith@mpa.n-i.nhs.uk. The only charge will be postage.

Officers and Council of IOMP - 2005

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Advertising requests should be addressed to

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Event information should be addressed to **Dr. Carter Schroy.**

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First International Prize for Education and Training The Eu Leonardo Da Vinci Award - Comes to Medical Physics –

Slavik Tabakov, Ph.D., Chairman ETC



Mr Nicolas van der Pas presents the Leonardo da Vinci Award to Dr Tabakov and Dr Lewis.

ing on Demand". All these materials are handled by an Image Database (running directly from the CD) and by a user-friendly uncomplicated HTML shell (which incorporates PDF text, hyperlinked with the corresponding images). This simplicity allows for the user to learn directly through his/her existing computer and its Internet browser and Adobe Acrobat Reader, without dependence of external software. The whole contents of the Web server is also engraved on the CD (as an e-book), thus eliminating the problems with Internet speed. These materials are commercialised and the income is directed to their update.

All EMIT materials are produced in English and French. Following the success of the previous project EMERALD, EMIT Consortium made appropriate steps to support the international use of these training materials. For this reason EMIT developed additionally a Digital Dictionary of terms covering the whole field of Medical Imaging. The Dictionary includes more than 3000 terms and cross-translates to/from any of: English, French, German, Italian, Swedish, Portuguese and Spanish. The Dictionary is engraved on each EMIT CD and includes possibility for future expansion and inclusion of new languages.

The quality of EMIT project results led to its nomination in mid-2004 for the prestigious inaugural award for education of the European Union - Leonardo da Vinci. A total of 32 projects were nominated chosen from more than 4000 education and training activities in the last decade. The award ceremony took place at the high-level Conference of all EU Ministers for Education, held in Maastricht, Holland, 14-16th December. At this event EMIT project Consortium was announced as one of the three Winners of the first Leonardo da Vinci Award. The specially made trophy (with engraving from Leonardo's "Flying man") was presented by Mr Nicolas van der Pas (EU Director General for Education and Training) to Dr Slavik Tabakov (EMIT Coordinator) and Dr Cornelius Lewis (representing the Contracting Institutions King's College London and Kings College Hospital).

EMIT e-learning materials are original. Each of both modules (US and MRI) is structured and has a common length of approx. 4 months. During this time the trainee will have to acquire most necessary professional skills (competencies). Each EMIT training module incorporates: List of Competencies (based on IPPEM training scheme); Structured Timetable (detailed curriculum); Educational Image Database (with jpg images); Workbook with practical tasks (made as a Web distributable e-book) and a Course Guide. The volume of EMIT e-learning materials includes more than 1900 images and 600 pages explanations of the tasks (including various practical protocols). These are engraved on 2 CD-ROMs and placed on a special Web server "Train-

Without doubt this Award for a Medical Physics project, presented in the presence of all Ministers of Education of the EU countries will be a boost for the development of the profession. EMIT Consortium thanks heartily to all colleagues who contributed to the development and assessment of these important for our profession e-Learning materials.

All information for the EMERALD and EMIT projects (plus a 30 MB demo) is available from their Web site: <http://www.emerald2.net>



The Leonardo da Vinci Award

Report from the Education & Training Committee –

Slavik Tabakov, PhD, Chairman IOMP - ETC

During the period October 2004 - March 2005 the IOMP Education and Training Committee supported the Regional Course/Workshop "Current Practices and Advances in Radiation Therapy Physics", at Manila, Philippines. The course, co-sponsored by AAPM, is planned for August 2005.

Additionally ETC initiated a discussion for development guidance and procedures for validation of Medical Physics courses. This was sent to the IOMP ExCom as a proposal for IOMP project to be presented at the World Conference on Physics and Sustainable Development, Durban, November 2005. The project objective will be to develop a Guide e-book with Model Curriculum for educational Medical Physics courses (also called MSc-level or post-graduate courses, and normally with duration of 1 year), which to be used by countries without experience/guidance in this field.

During December 2004 the International Medical Physics training project EMIT was awarded with the first ever Leonardo da Vinci Award of the European Union. A separate article in this MPW covers this activity.



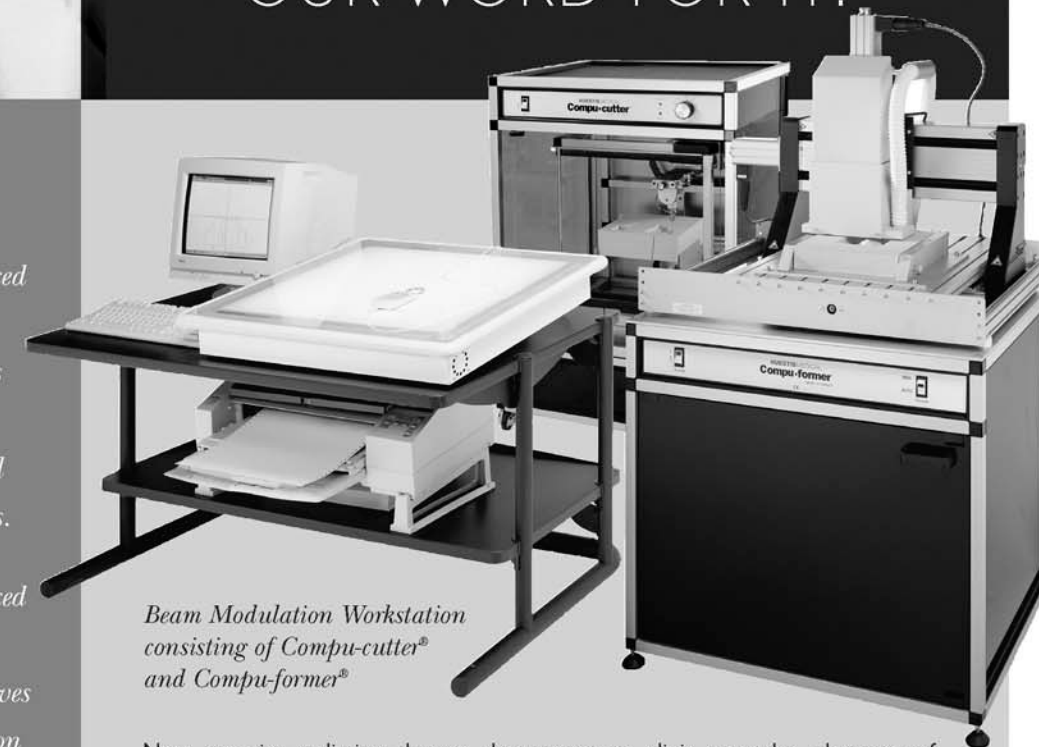
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Secretary General's Report – *Peter H S Smith, B.A., Ph.D.*

Is 'Physics for Health' the same as 'Medical Physics'? This is not just semantics but raises the issue of whether we, as a profession, are fully contributing to all areas of health and well-being that we could. What should IOMP be doing if there are underdeveloped areas?

These thoughts have been prompted by considering the part IOMP should play in the World Congress on 'Physics and Sustainability' (South Africa, November this year) where one of the four themes is 'Physics and Health'. Underdeveloped areas can either be at the boundaries of our profession or healthcare problems that medical physicists are not focussing on. Medical physics activities world-wide tend to deal with healthcare issues arising from the historical development of medical physics in Europe and America and the profile of diseases found in those regions - heart disease and cancer in particular. The disease profile in other continents is very different. HIV/AIDS is the leading cause of death among adults aged 15-19 world-wide. Tuberculosis, HIV/AIDS and malaria kill over 6 million people each year.

The above is not intended to lessen the importance of more traditional aspects of medical physics in developing countries. The World Health Organisation (WHO) recognises that access to health technologies is one of the most distinct differences between rich and poor countries and that a strong mesh of health technologies is one of the most fundamental prerequisites for sustainable and self-reliance of health systems. In its plans for 'Essential Health Technologies' for 2004-2007 the WHO has identified diagnostic imaging as one of the major challenges - some three-quarters of the world's population have no access to diagnostic services (www.who.int/ehf).

IOMP has as one objective 'To contribute to the advancement of medical physics in all aspects', with medical physics being defined as '...using scientific (mainly physics) principles, methods and techniques in practice and research for the prevention, diagnosis and treatment of human disease, with a special goal of improving health and well-being'. Plenty of scope therefore for medical physicists in the first and third world countries to apply both established and emerging areas of physics, and closely related areas, to the challenges of healthcare world-wide. Of course, most medical physicists are employed to deliver a specific service and have no time for exploring new areas. Perhaps IOMP should be identifying areas and alerting funding bodies. Even if some healthcare problems seem unamenable to the attention of physicists, a very small contribution to a large problem can be significant.

The above thoughts were also stimulated by my attendance in January on behalf of the International Union of Physical and Engineering Sciences in Medicine (IUPESM) at a of an inter-Union working group held at the International Council of Scientific Unions (ICSU) in Paris. The aim was to finalise a document for presentation to ICSU proposing the establishment of an ICSU programme 'Science for Health and Well-being' and to requesting initial funding. Readers will recall that IUPESM is the umbrella organisation for medical physics (IOMP) and medical engineering (IFMBE) and IUPESM is a member of ICSU, which is a non-governmental organisation representing a global membership that includes both national scientific bodies and international scientific Unions. The proposed programme will focus on the contribution

that cross-disciplinary research can play in tackling health and well-being issues. The proposal includes two working papers from IUPESM, 'The Impact of Technology on Hypercommunicable Disease Processes' and 'Science and Technology in the Care of Patients and Persons with Disabilities' (see www.iupesm.org) A number of other Unions are involved, not only those directly involved in health, such as the 'International Union of Biological Sciences' but ones such as the 'International Geographical Union'. ICSU issued a draft Strategy for 2006-2012 in February and this identifies four themes, with 'Human Health' as one of these. The Strategy will be finalised and the outcome of our proposal will be known by the autumn.

The IOMP executive Committee (EXCOM) had a virtual meeting in January and notes of it are on the IOMP website. EXCOM warmly welcomed and approved (on an interim basis and subject to formal Council ratification) an application by the Mexican Federation of Organisations for Medical Physics. The Federation is composed of three bodies - two of which are existing members of IOMP (SOFIMED NL and AMFM) and these two organisations are withdrawing their separate membership - and it represents 50 medical physicists.

EXCOM agreed that IOMP should prepare a strategy with a view to formal approval by Council in 2006, after full consultation with all interested parties. Any ideas and proposals are most welcome. A budget for 2005 was also approved.

The IOMP website now has dedicated areas for the Equipment and Library programs. The 'Global OnLine Medical Physics Book' (GOMP) website has been transferred to the IOMP site (under 'Education and Training').

Report of the Scientific Committee – *Cari Borrás, D.Sc., Science Committee Chair*

The IOMP Science Committee in this period has continued working with the ICRP and the ISR to have joint sessions at the forthcoming ICMP 2005 in Nuremberg. The planning of the ICRP/IOMP Symposium is completed: the topics and the speakers have been selected and their participation, confirmed. The ISR/IOMP Symposium is still in the planning stage.

The Chair of the SC was invited to present: Medical Physics: An International Perspective to the Joint Meeting of the National Society of Black Physicists and the National Society of Hispanic Physicists, held in Orlando, FL, February 17-19. She discussed the role of the IOMP and its committees' activities.

The two radiation oncology societies in Latin America, the Círculo de Radioterapeutas Latino Americanos (CRILA) and the Grupo Latinoamericano de Curiterapia y Radioterapia Oncológica (GLAC-RO) organized a Joint Congress in Lima, Peru, with significant participation of ALFIM and ALFIM members, March 29-April 2, 2005 to form a new society: Asociación Latino Americana de Terapia Radiante y Oncología (ALATRO). The IOMP SC was represented at the ALFIM sessions by Dr. Maria Esperanza Castellanos, ALFIM liaison to the IOMP SC. The Chair of the IOMP SC participated in some clinical sessions, discussing the role of the medical physicists in quality assurance programs and in the investigation of accidental medical exposures.

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Calendar of Events – *Carter Schroy, Ph.D., MPW Associate Editor*

The following events can be found on the online calendar of the journal "Medical Physics" at <http://medphys.org/calendar/>. Please email your international events to the Calendar Editor, Carter Schroy, at EventsEd@aol.com for inclusion in MPW. Deadlines for MPW are April 1 and October 1 for issues that are mailed several weeks later.

28 June - 1 July 2005

XV Congreso Nacional de Física Medica Sociedad Española de Física Medica (SEFM); Pamplona, Spain <http://www.sefm.es> | anastasio.rubio.arroniz@efnavarra.es

18-22 July 2005

AAPM Summer School; Seattle, WA USA
Topic: Brachytherapy Physics
aapm@aapm.org | <http://aapm.org>

19-20 July 2005

Medical Image Understanding and Analysis 2005; Bristol, UK <http://www.miuia.org.uk>

24-28 July 2005

AAPM 47th Annual Meeting; Seattle, WA USA
American Association of Physicists in Medicine
aapm@aapm.org | <http://aapm.org>

28 Aug - 1 Sep 2005

Applied Modeling and Computations in Nuclear Science; Washington DC, USA to be held at the 230th American Chemical Society National Meeting <http://www.cofc.edu/~nuclear> | tms15@health.state.ny.us

14-17 September 2005

14th Int'l Conference of Medical Physics; Nuremberg, Germany Incorporates the 9th European Congress of Medical Physics (EFOMP) and the 36th Annual Meeting of the German Society of Medical Physics (DGMP) and is being held jointly with the 39th Annual Meeting of the German Society for Biomedical Engineering <http://www.icmp2005.org> | ICMP2005info@imp.uni-erlangen.de

18-20 September 2005

7th Int'l Conference on Dose, Time, and Fractionation Multi-Modality Based Modulation of Dose, Time, and Fractionation Using Modern Tools.; Madison, WI USA
paliwal@humonc.wisc.edu

29-30 September 2005

WAM 2005 - Workshop on Alternatives to Mammography; Copenhagen, Denmark
<http://www.WAM2005.com> | lbako@WAM2005.com

13-18 November 2005

14th International Symposium on Microdosimetry (MICROS 2005); Venice, Italy
An Interdisciplinary Meeting on Ionising Radiation Quality, Molecular Mechanisms,

Cellular Effects, and Their Consequences for Low Level Risk Assessment and Radiation Therapy <http://micros2005.inl.infn.it> | Roberto.Cherubini@Inl.infn.it

10-12 April 2006


9th International Workshop on Electronic Portal Imaging (EPI2K6); Melbourne, Australia
Jeff.Crosbie@wbrc.org.au

28 June - 1 July 2006

CARS 2006: Computer Assisted Radiology and Surgery; Osaka, Japan
<http://www.cars-int.org> | office@cars-int.org

27 Aug - 1 Sept 2006



World Congress of Medical Physics and Biomedical Engineering; Seoul, South Korea <http://www.wc2006-seoul.org> | wc2006@koconex.com



World Congress on Medical Physics and Biomedical Engineering 2006

WC 2006 SEOUL

Aug. 27 - Sept. 1, 2006 COEX Convention & Exhibition Center Seoul, Korea,
Hosted by KOSMBE, and KSMP

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For more information, visit our website at: www.wc2006-seoul.org

Status AAPM/IOMP Libraries April 2005 –

Allan Wilkinson, Ph.D., IOMP Curator of Libraries

We currently have 68 active libraries in 41 countries. Active status is maintained by returning an update questionnaire every 2 years. The 2004 update questionnaire was sent to 70 libraries in April 2004. By December 2004, responses from 41 libraries had been received. There are 4 libraries that sent updates in 2003. A second request for updating the library information was subsequently sent to the 25 libraries that had not yet responded. To date, we have received responses from 7 of these. One further attempt to contact the remaining 18 libraries will be made shortly. After that, non-responders will be placed on the inactive list.

There have been 6 private donations of journals/books in the past year to Cameroon,

Costa Rica, India, Pakistan, Thailand, and Turkey. We are in the process of assigning 2 more private donations to deserving libraries.

Jennifer Davis at AAPM coordinates the donations of Medical Physics Journal subscriptions. She informed us that 68 members donated their 2005 subscriptions to the Library Program. We have e-mailed her the list of current address for the 68 recipient libraries. Each quarter, The Society for Radiological Protection mails their quarterly publication, The Journal of Radiological Protection, to all active libraries.

Anyone wishing to donate materials or establish a library is asked to contact the curator.

World Congress '06 Seoul, Korea – Travel Assistance Program

– *Stelios Christofides; IOMP, PRC Chairperson*

Goals of the Program

1. To introduce members of developing countries to medical physics scientific, educational and professional issues at the international level and make them more effective to advance medical physics in their own country.
2. To promote international co-operation in the field of medical physics between all member countries of the IOMP.

Application Instructions and Application Form

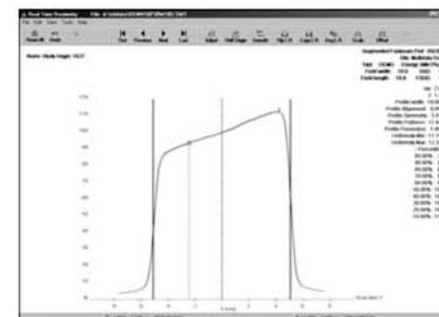
Instructions, Conditions and Application Form can be found in the IOMP Web page (www.iomp.org) under electronic forms Travel Assistance Program: World Congress 2006.

RTD

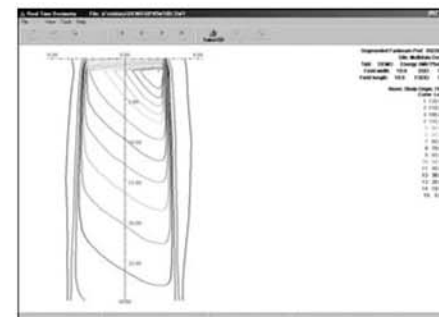
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RTD Waterphantom & Film Scanning Solutions

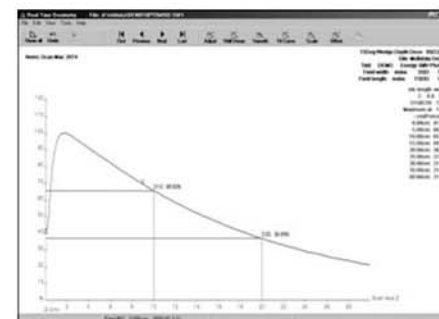
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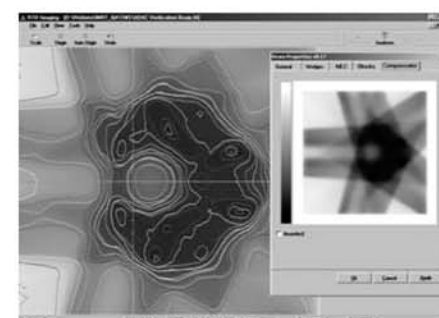
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Wedge Profiles in Isodose Display



Depth Dose Analysis



Optional IMRT Verification Package

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In Memory of Prof. John R. Cameron — *Azam Niroomand-Rad, Ph.D., IOMP President*



Prof. John R. Cameron
(1922 – 2005)

It is with great personal and professional sadness that I inform you of the passing of Professor John R. Cameron on March 16, 2005 in Gainesville, Florida, USA, from diabetic complications. He was 82 years old and is survived by his wife Lavonda and two daughters, Anne Marie Skye and Carol Cameron. With the death of Prof. Cameron, our organization has lost a beloved founder, a great innovator, and an internationally acclaimed scientist in the medical applications of physics.

Prof. Cameron attained many honors throughout his distinguished scientific career, including the William D. Coolidge Award of the American Association of Physicists in Medicine (1980), the first Roentgen Centennial Commemorative Medal ever given to a medical physicist by the Radiological Society of North America (1995), and the first Marie-Sklodowska-Curie Award by our organization (2000). During his career, Prof. Cameron served as an advisor or consultant to numerous organizations including the International Atomic Energy Agency, the International Center for Theoretical Physics, the Bureau of Radiological Health (now CDRH), the Atomic Energy Commission (now NRC), the State of Wisconsin Radiation Safety Office, and the University of Wisconsin (UW) Radiation Safety Committee. He was a Charter member of the American Association of Physicists in Medicine (AAPM), serving as its President (1968), President of the North Central Chapter of the Health Physics Society (1968), President of the Central Chapter of the Nuclear Medicine Society (1968), and a member or honorary member of medical physics societies in England, Ireland, France, Italy, India, and Brazil. Prof. Cameron also served as Secretary-General of our organization (1968-1974).

Of Scottish heritage, Prof. Cameron was born in a farm in northern Wisconsin on April 21, 1922. He received his B.S. (1947) in mathematics from the University of Chicago (1947), his M.S. (1949) in physics, and his PhD (1952) in nuclear physics from the University of Wisconsin (UW) in Madison. He then taught at the Universidad de Sao Paulo, Brazil, and the University of Pittsburgh before returning to the UW in 1958. At UW, he

agreed to work as a physicist in the Department of Radiology, where he applied physics principles to the diagnosis and treatment of disease. He subsequently founded the "medical physics" program at the UW and helped it to grow from one physicist to the first medical physics department in a medical school in the US by 1981. Prof. Cameron's accidental life in physics and medical physics is best reflected in one of his informal talks to his physics colleagues that can be found at www.medphysics.wisc.edu.

Besides founding and heading a leading research and training medical physics program in US, in 1960, Prof. Cameron invented a bone densitometry instrument a device for detecting and evaluating osteoporosis. Bone densitometry was the first application of digital radiography. It used a scanning mono energetic photon beam, which was detected and counted with a pulse height analyzer. There are now about 45,000 such instruments in use in the world. He also developed thermoluminescent dosimetry, TLD, in mid 1960s. TLDs are now the basic method for measuring radiation dosage to radiation workers and to patients. (Prof. Farrington Daniels of UW had invented the TLD in 1954 but had not developed it for commercial use).

Prof. Cameron first advocated for the reduction of radiation to patients from medical x-rays in 1960. By 1970 he realized that the main cause of excess radiation exposure to the patient from medical x-rays was the poor quality of many x-ray images. He and other colleagues at UW pioneered instruments that allowed better quality control (QC) of medical x-ray images. They developed simple but effective tools to evaluate x-ray equipment. Prof. Cameron and his wife founded Radiation Measurements Inc. (RMI) in Middleton, WI, in 1974 as a nonprofit company to manufacture and sell these devices. Breast cancer x-ray facilities

all over the country are currently being certified with use of these devices. After his retirement in 1985, when RMI was sold to Dr. Charles Lescrenier in 1987, the money was used to establish Medical Physics Publishing Company. Prof. Cameron was also instrumental in founding the UW Bio-magnetism Laboratory, which detects weak magnetic fields produced by physiologic activity and uses these signals for diagnosis of disease and modeling of human brain including imagination and creativity. He is the author of countless journal articles and several books dealing with medical uses of radiation and how the body works. His three famous books are: Medical Physics, Physics of the Body, and Thermoluminescent Dosimetry.

Prof. Cameron dedicated his entire life to improving the medical physics profession in the US and many developing countries. He is well known for his original, forward thinking, and thought provoking presentations of controversial scientific subjects. His most recent efforts were to undo "radiation phobia" by informing the professionals

(continued on page 15)

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Prof. John R. Cameron —

(Continued from page 6)

and the general public of the potential benefits of radiation at low doses. Prof. Cameron strongly disagreed with Linear No Threshold (LNT) model indicating that small amount of radiation may cause cancer. He points out that the public is misinformed about the hazards of low level radiation and he suggested a practical radiation unit for the public - BERT (Background Equivalent Radiation Time) describing the diagnostic exposures in terms of human exposure times to background radiation. He felt that profession itself is partly responsible for the public's fears and misconceptions about ionizing radiation. He believed that low-level radiation is good and made it his crusade to inform the public of unjustified radiation phobia. (See his last paper in the Jan. 2005 BJR).

In addition to being an incredibly scientifically gifted individual, Prof. Cameron was a great educator with a sense of humor. He had the ability to present scientific concepts in a lucid and humorous manner that even a layperson could understand and enjoy them. He was a very generous, openhearted, spirited, and optimistic individual, who took joy in educating people. Prof. Cameron was very supportive of medical physics activities in developing countries as evident by his teaching (fluent in Portuguese and Spanish) and by donation of QC tools, books and journals to the developing countries. We will all miss his selfless energy, dedication to education, and his wonderful sense of humor. Fortunately our memory of him is preserved in his web site www.medphysics.wisc.edu/~jrc/ and in the many videotaped interviews that he conducted of his colleagues for the AAPM History Committee.

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ANNOUNCEMENTS

14th International Conference of Medical Physics

Nuremberg, Germany, Sept. 14-17, 2005

incorporating the
9th European Congress of Medical Physics (EFOMP)

and the
36th Annual Meeting of the German Society of Medical Physics (DGMP)

and held jointly with the
39th Annual Meeting of the German Society for Biomedical Engineering (DGBMT)

Important Dates:

November 1, 2004: Start of early registration

March 15, 2005: Deadline for abstract submission

April 30, 2005: Abstract acceptance notification

Pre-Conference Event:

**1st AAPM/EFOMP Scientific Symposium
"Advances in Imaging and Radiation Therapy"
September 12-13, 2005 in Nuremberg, Germany**

Please feel free to contact us at any time:

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7. Medical Optics and Biophotonics
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SAVE THE DATE!

The World Conference on Physics and Sustainable Development will be held in Durban, South Africa, on October 31-November 2, 2005.

As part of the celebration of the International Year of Physics, the 100th anniversary of Einstein's "Miraculous Year" in which he published three of his most famous papers, the *World Conference on Physics and Sustainable Development*, will be held in Durban, South Africa, on October 31-November 2, 2005. Participants from developed and developing nations will join together to examine the contributions that physics has made to society in the past in order to formulate and sharpen action-oriented plans for the contributions that it can and should make in future. This conference will be sponsored by UNESCO, the Abdus Salam International Centre for Physics (ICTP), the International Union of Pure and Applied Physics (IUPAP), and the South African Institute of Physics (SAIP).

We hope that you will plan to attend and will encourage others to do so. For additional information, please visit www.wcpsd.org.

UNIQUE OPPORTUNITY

The World Conference will serve as the first global forum to focus the physics community toward development goals and to create new mechanisms of cooperation toward their achievement. It will be held in conjunction with the 2005 General Assembly of IUPAP and is expected to attract 400-500 participants from across the globe.

Four themes have been chosen for the conference: Physics and Economic Development, Physics and Health, Energy and the Environment, and Physics Education. An International Advisory Committee (IAC) comprised of Nobel Laureates and other international science leaders will work with a Planning Committee to prepare the program. In part, the Conference will be a follow up to the UNESCO-ICSU World Conference on Science which was held in June 1999 and sought to strengthen the ties between science and society, as well as to the broader United Nations World Summit on Sustainable Development that was held in Johannesburg in the summer of 2002. The Conference is expected to lead to important action items and that organizations of physicists, including all of the national physical societies, will join together to implement collectively.

Donation of Used Equipment –

PRC Report for Jan.-June 2005

Mohammed K. Zaidi, Program Manager, IOMP Professional Relations Committee

Dr. Erich Gebhardt, Praxis Dr. Angerstein/Dr. Huber, Weiltinger Str. 11, D 90449 Nürnberg Germany has very kindly donated a Multidata Treatment Planning System Version 2.4S to IOMP Equipment Donation Program. The TPS was used in their radiation therapy institute until January 2004 in routine patient planning. The Multidata TPS consist of: PC with MS-Windows 95, 128MB Memory, 3,5" Floppy, 2 Harddisks (1,6+2 GB), SCSI-Controller, CR-ROM drive, CD-R/W-drive, 5,25" MOD Pioneer Drive, 10/100 network, keyboard, mouse an printer (inkjet) Canon BJC 610 (A4) an digitizer (Multidata) 77x66 cm (Digitizing area: 62x52 cm), background illuminated, fitting to the PC, inclusive cables. We used a 21" one, but it is not included in the donation. Software: Multidata System DSS 2.4S (Revision state 30 March2000) with option for CT-Scanner GE High Speed Advanced and Siemens, both via MOD or network, no DICOM, Software for converting measured profiles into the DSS-System is included. With original Documentation and Software-Disks. The system works well and is complete. You just need a VGA monitor. This is being shipped to Institute of Nuclear Medicine, Oncology and Radiotherapy (NORI), Attn: Dr. Rafaqat Ali Jafri, Director, G-8/3, Islamabad, PAKISTAN. Necessary shipping arrangements are being made.

A GE DMR mammographic machine will be shipped to Professor Dilshod Zikirjahodjaev, Chief Oncologist, Oncology Scientific Center, Dushanbe, Republic of Tajikistan. It is very kindly donated by Dr. Leszek Hahn, Foothill Medical Center, Calgary, Canada. I am thankful to Mr. Ward Baird, Sales Representative of Innomed Christi, who are the trade-in owners of this machine, have very kindly agreed to donate this machine to IOMP.

Fred Asprinio, Jupiter Medical Center, Radiation Oncology, Jupiter, FL, USA has very generously offered 3 units of Nuclear Associates 37-720 electrometer (dual channel) for diode measurements, Sun Nuclear PDM, patient dose monitor for diodes(4 channel), Victoreen 471 survey meter, needs repair, Holaday microwave survey meter, model HI-1600 and Lumisys 75 film scanner. This equipment donation from Jupiter Medical Center, Radiation Oncology is being shipped to Idaho State University, College on Engineering, ATTN: Dr. Jay Kunze, Dean, Pocatello, ID 83209. Idaho State University is making a museum of old instruments.

In the last report, I forget to mention the name of my friend, Charles Narayanan, physicist at the Reid Hospital, Richmond who was the do-

nor for the CMS TPS shipped to India. He has been very helpful to me in getting used equipment and its shipment. I am very sorry for the mistake.

Used equipment needed:

Linear accelerator, Theratronc 780 Co-60, Automatic film processor, block cutter, patient dose monitor and ultrasound machine.

Shipping arrangements:

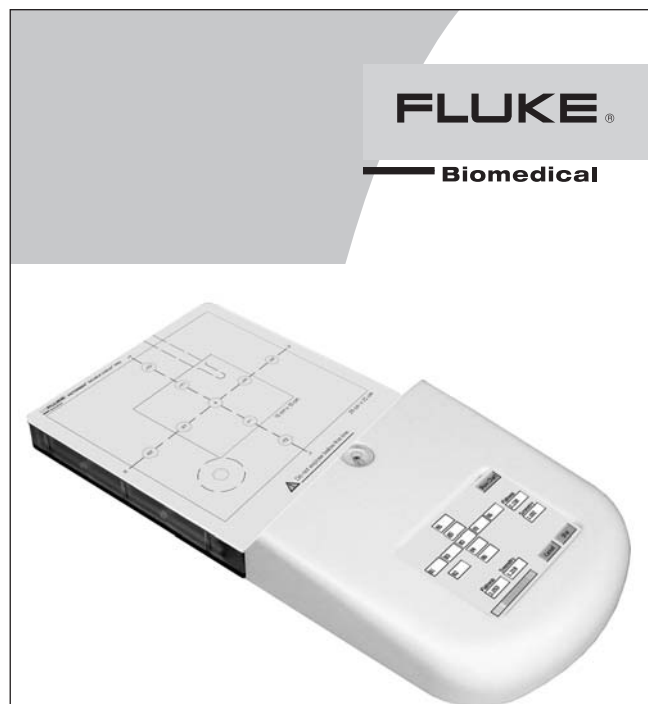
The institutions need used equipment should mention in their response that they would pay or make arrangements for shipping at a very short notice.

Dr. Ajai Kumar Shukla from India will be helping me in IOMP efforts to deliver quality service in getting and transferring used equipment from generous donors to those who need them badly. He can be reached at Department of Nuclear Medicine, SGPGIMS, Raebarelli Road, Lucknow (UP), 226014, INDIA. His phone number is 91-0522-2668700 extension 2615 and email address is akshukla@spgi.ac.in.

The equipment donated to IOMP Used Equipment Donation Program is generally in good working condition but we don't guarantee its usefulness. The donation of used equipment to IOMP are sometime tax deductible.

Our webpages has a space for used equipment program. Please visit, I will be able to post a list of available used equipment but most of it comes to me at a very short notice, so it may not be there. A list of donated equipment will also be posted.

If you want to donate or want some used equipment donated to your organization, please contact Mohammed K. Zaidi, Professional Relations Committee at our website www.iomp.org.



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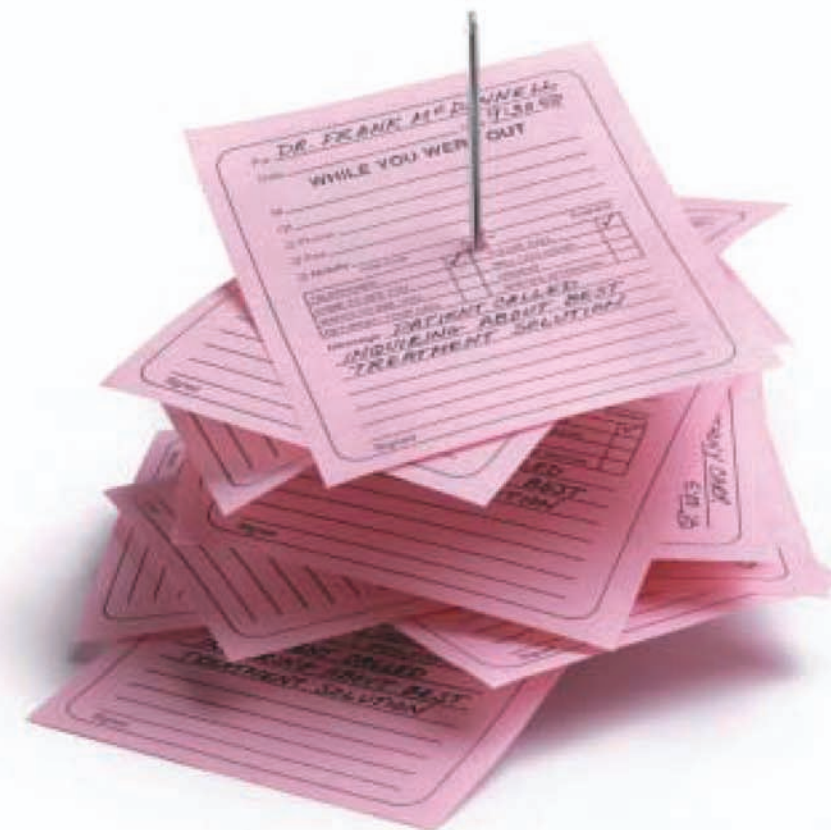
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This column of MPW is dedicated to provide an update on new information source and related news topics in the fields of Medical and Health physics. Often we list references to review articles, useful websites, and summaries of current innovative advances in the field. Any suggestion from the readers to enhance this column is welcomed. In addition, if you have ideas or issues that you believe should be brought to the attention of the MPW readers, please send them to the MPW editor, Dr. Parsai, at: eparsai@meduohio.edu.

High Cholesterol Levels May Speed Prostate Cancer Lowering Cholesterol Levels May Slow Growth of Prostate Cancer Tumors

This is according to M. Freeman, Ph.D., program director of the urological diseases research center at Children's Hospital in Boston, whose new study appeared in the April 2005 issue of *The Journal of Clinical Investigation*. "Our data support the notion that cholesterol-lowering drugs which are widely used and fairly safe might be effective in prevention of prostate cancer, or as an adjunctive therapy". Researchers say the results suggest that treating high cholesterol with cholesterol-lowering drugs like statins may offer a new way to treat and potentially prevent prostate cancer. In this study, researchers injected Mice with human prostate cancer cells, and when the animals' cholesterol levels were raised by diet, cholesterol accumulated in the outer walls of the tumor cells. This cholesterol buildup activated a "cell survival" pathway known as Akt. Activation of this pathway prompted the tumor cells to resist cues to die. Therefore, the cancer cells multiplied and the tumors grew. Researchers say elevated cholesterol levels did not stimulate new prostate cancers but promoted tumor growth. In a separate experiment, researchers looked at the effects of adding a cholesterol-lowering statin drug to prostate cancer cells in a test tube. The drug reduced cholesterol buildup in the cell walls and increased the rate of cell death, which caused the cancer cells to stop growing. Researchers say although some studies have linked high cholesterol levels to certain types of cancer, very little is known about the relationship between cholesterol and cancer at the cellular level. This study suggests that cholesterol may help prostate cancer tumors survive and grow at the cellular level by changing the chemical signaling pattern within the cells.

A Cold Approach to Prostate Cancer Treatment 85% of Men Free of Prostate Cancer 10 Years after Cryoablation

Cryoablation, a prostate cancer treatment that destroys tumors by freezing them may be as effective in the long term as surgery or radiation. "Patients who got this treatment often went back to their usual activities within two or three weeks," study researcher F. Derrick Jr., MD, a urologist in Charleston, S.C. presented in March 2005 at a regional meeting of the American Urological Association in Charleston. Among

88 men enrolled in the study, 85% remained free of prostate cancer for a decade after having the freezing treatment, known as cryoablation or cryosurgery. This is the longest follow-up study of this prostate cancer treatment reported to date and the long-term side effects of cryoablation also compared favorably to more established prostate cancer treatments. While all men were impotent immediately after having the procedure, about a third regained some natural potency without the aid of drugs within a year, Derrick says. Just 2% of the men had severe urinary incontinence, but 8% had some lesser degree of leakage. The study included prostate cancer patients treated with cryoablation between 1994 and 2004. Although cryoablation has been around for decades, it has been slow to catch on as a prostate cancer treatment because complication rates were high with earlier versions of the technology. Cryoablation is suitable for men who have not previously received prostate cancer treatment and whose prostate cancer has not spread. Men who have already been treated with radiation can also receive cryoablation as long as the cancer has not spread. The procedure involves inserting thin, temperature-controlled probes through the skin and into the prostate gland. In most cases the entire prostate is frozen.

The position of the American Urology Association on cryoablation effectiveness is that it is seen as one of several emerging prostate cancer treatments that could eventually prove superior to traditional surgery. Traditional surgery and radiation according to their spokesman J. B. Thrasher, M.D., but it has not been out long enough to provide researchers with good long-term data. "Before this is widely adopted, most academic centers and urologists are going to want to see more data". More and more men are open to new prostate cancer treatments, especially if they prove to have fewer long-term side effects. "They want the long-term cure, but there is also an increasing understanding of quality of life issues in the treatment of prostate cancer," he says. "A minimally invasive approach like this one is very appealing. We just need more data to be able to adequately answer our patients' questions."

Herceptin® Combined With Chemotherapy Improves Disease-Free Survival for Patients With Early-Stage Breast Cancer

Results from two large randomized clinical trials for patients with HER-2 positive invasive breast cancer show that those patients with early-stage breast cancer who received Herceptin® (trastuzumab) in combination with chemotherapy had a significant decrease in risk for breast cancer recurrence compared with patients who received the same chemotherapy without trastuzumab. Patients are considered "HER-2 positive" if their cancer cells "overexpress," or make too much of, a protein called HER-2, which is found on the surface of cancer cells. Trastuzumab slows or stops the growth of these cells, and it is only used to treat cancers that

overexpress the HER-2 protein. Approximately 20% to 30% of breast cancers overexpress HER-2. These tumors tend to grow faster and are generally more likely to recur than tumors that do not overproduce HER-2. The clinical trials were sponsored by the National Cancer Institute (NCI), part of the National Institutes of Health, and conducted by a network of researchers led by the National Surgical Adjuvant Breast and Bowel Project (NSABP) and the North Central Cancer Treatment Group (NCCTG), in collaboration with the Cancer and Leukemia Group B, the Eastern Cooperative Oncology Group, and the Southwest Oncology Group. Genentech, Inc., South San Francisco, Calif., which manufactures trastuzumab, provided the drug for the trials under the Cooperative Research and Development Agreement (CRADA) with NCI for the clinical development of trastuzumab.

The Data Monitoring Committees overseeing the combined analysis of these trials (known as NSABP-B-31 and NCCTG-N9831)* recommended that the results of a recent combined interim analysis be made public because the studies had met their primary endpoints of increasing disease-free survival (the amount of time patients live without return of the cancer) in patients receiving trastuzumab in combination with chemotherapy. The improvement in overall survival also was statistically significant for women receiving a combination of chemotherapy and trastuzumab. Patients in the clinical trials who received trastuzumab in combination with standard combination chemotherapy had a 52 percent decrease in disease recurrence compared to patients treated with chemotherapy alone. This difference is highly statistically significant. "This is a major advance for many thousands of women with breast cancer," said NCI Director A.C. von Eschenbach, M.D. "These results are one more example that we are at a major turning point in the use of targeted therapies to eliminate suffering and death from cancer," he added. The leaders of the studies underscored the significance of these results and cited the collaborative efforts involved. "These findings confirm that we now have a very potent weapon against the recurrence of cancer cells that overexpress HER-2," said E.A. Perez, M.D., who chaired the NCCTG trial and is a medical oncologist at the Mayo Clinic in Jacksonville, Florida. E. Romond, M.D., study chair for the NSABP and professor of oncology at the University of Kentucky, in Lexington, Ky., noted, "For women with this type of aggressive breast cancer, the addition of trastuzumab to chemotherapy appears to virtually reverse prognosis from unfavorable to good."

Information from over 3,300 patients enrolled in these studies was used for analysis. Patients with operable breast cancer whose tumors over-expressed HER-2 were enrolled in these studies between February 2000 and April 2005. Patients were randomized to receive chemotherapy with doxorubicin and cyclophosphamide followed by paclitaxel, or doxorubicin and cyclophosphamide followed by paclitaxel and trastuzumab. Most patients had lymph node-positive breast cancer, or breast cancer that had spread to the lymph nodes, with only a minority having lymph node-negative disease. The limited information in the node-negative group did

(continued on page 10)

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Editor's Corner — (continued from page 8)

not allow for a separate analysis of this group. Chemotherapy of the type given in these studies has a risk of congestive heart failure (weakening of the heart muscle) of less than 1 percent. In these studies, the likelihood of congestive heart failure in women receiving the combination of chemotherapy and trastuzumab was increased by 3% to 4%. Patients in these studies will continue to be followed for any additional side effects. Additional safety data will be presented at ASCO. Trastuzumab is an example of a "targeted" therapy, an agent that is directed against a specific change in the cancer cell. Trastuzumab was approved for the treatment of advanced breast cancer in 1998. An estimated 211,240 women will be diagnosed with breast cancer in the United States in 2005. Of these, about 30 percent have lymph node-positive breast cancer, and about 20 percent to 30 percent of these tumors overexpress the HER-2 protein, the target for trastuzumab. Breast cancer is the most commonly diagnosed cancer in women and the second leading cause of cancer-related death in women in this country. An estimated 40,110 deaths from female breast cancer will occur in 2005 in the United States, accounting for about 15 percent of all cancer-related deaths in women in the nation.

The following has been compiled by: **Mohammed K. Zaidi**, Member, IOMP Professional Relations Committee.

Vaccine for Cervical Cancer:

Merck's and GlaxoSmithKline have been awarded rights to develop the vaccine to protect ladies with cancer of cervix. Cervical cancer strikes nearly half a million women worldwide each year and kills about half. Virtually all cases are caused by infection with human papilloma virus, or HPV, which is spread through sex. It will be administered at a young age so that they are protected before they had any sex. The hepatitis B vaccine has dramatically reduced the number of infections that progress to liver cancer. It is also being researched to help cure genital warts in men and women and penile and anal cancers in men. Another research worked to show how the cells can destroy unwanted proteins, it will help scientists to develop new medicines for cancer and other diseases. It is reported that they will be able to manipulate the protein degradation system in two different ways - either to prevent it from destroying proteins that boost the immune system, or to get rid of proteins that help cause diseases [ISJ, 11/01/2004; Bioc.Biop.Res.Comm, 1978, 78 (4), 1100-05; Cell, 1984, 37 (5), 57-66].

New Test for Breast Cancer:

Magnetic resonance imaging (MRI) was good in detecting cancer but less effective at ruling out malignancies. MRI beats mammography in distinguishing benign from malignant breast tumors; biopsies still must confirm the diagnosis. Dr. Bluemke of John Hopkin's added that the MRI aids in determining the extent of the cancer, it is not a substitute for breast biopsy. However the MRI

was not adversely affected by factors such as breast density, tumor type or menopausal status, which frequently complicates mammography interpretation. It was also learned that MRI would aid patients with difficult-to-interpret mammograms [JAMA, 2004, 292, 2735-42].

Heart Attack Risk:

One of the added advantage to routine colon cancer screening, the Computed Tomographic (CT) colonography, or virtual colonoscopy usually detect colon cancer and can also detect heart attack risk. Dr. Davila used this scanning to measure calcium deposit levels within the aorta and its branching vessels without additional testing. Just by noting calcification scores during virtual colonoscopy, physicians may have additional means of identifying those at risk for cardiovascular disease [RSNA 2004 Daily Bulletin].

Accident – Overexposure on 28 Teletherapy Patients:

The US NRC and IAEA reported an accident in Panama involving radiation overexposure of 28 teletherapy patients, resulting in multiple deaths in 2001. The two lady physicists involved are getting four years in a Panamanian jail for either (1) using buggy software, or (2) not doing a hand calculations while treating patients by improper entry of block shapes and its effect on dose calculations. To those who own buggy software (Windows' operating systems to start with), the sentencing document makes it look like these individuals "hacked" software that they really shouldn't have. Most physicists have at one time or another had to find ways to work around the limitations of their tools. When needed, ways to cajole BEV contours may be found and the crossed-contour segments cause problems. Similar failures, contour points touching, contour segment coincident with beam rayline, etc., can be observed. The hand calculations should be considered to be a non-negotiable requirement. In developing countries, hand-calculations and independent verification of dose to the prescription point as calculated by the treatment planning system for each individual patient and before the first treatment, should be a must. The proper treatment and save the life of a patient should be the most important part of their work schedule [US NRC Information notice IN 2001-08].

Oral Contraceptive (Pill) Cuts Cancer, Coronary Risk:

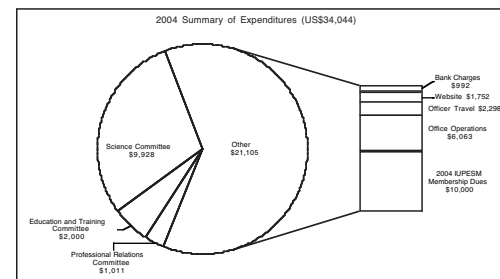
The present study done on 162000 women at 40 locations and funded \$625M by the Institute of Health concludes that the pills have lower risks of heart disease and stroke and no increased risk of breast cancer. The types of hormones and the stage of life when they're used may be what make them helpful at one point and harmful at another. The pills were first introduced in 1960. Women who had taken pills for four years or more had 42% lower risk of having ovarian cancer and 30% lower chances of developing uterine cancer. No

effects were seen on the risk of some specific cancers - breast, colon or bladder. The popular form of the uses estrogen derived from horse urine; birth control pills use a synthetic, manufactured form of it. Pills contain four to six times the amount of estrogen as even the lowest formulations of hormone replacement therapy [www.nhlbi.nih.gov/whi/].

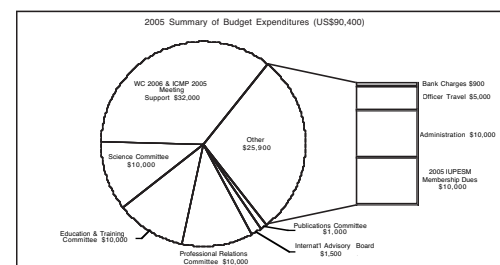
Treasurer's and Finance Committee Report 2004 –

George Mawko, Ph.D., Treasurer IOMP

The IOMP treasury started 2004 with a balance of US\$196,646 and completed the year with \$201,748 for a net surplus of \$5,102. Our income was mostly from national organization dues, \$39,146 and expenditures amounted to \$34,044. A breakdown of the expenditures is provided in the following chart;



For 2005, income is projected at \$50,050 and expenses at \$90,400. The budgeted operating expenses are summarized in this chart:



Details about the 2005 budget can be found at <http://www.iomp.org/budgets.htm>.

Currently the members of the Finance Committee are Dr. George Mawko, Chair (Canada), Dr. Nisakorn Manatrakul, (Thailand), Dr. James B. Smathers, (USA), Dr. Peter H.S. Smith, IOMP S-G (UK) and Dr. Mehrdad Sarfaraz, (USA). Dr. Sarfaraz joined this committee in 2004 as its inaugural Corporate Liaison Officer, responsible for corporate membership recruitment and retention. The Finance Committee has been actively involved in planning the 2005 budget as well as seeking additional streams of revenue in order to provide a stable long-term source of funds for IOMP programs and activities.

MDS/Nordion

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